Countercyclical Uncertainty and Recession Announcements

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Abstract

Uncertainty is known to negatively affect macroeconomic variables, as shown in the literature; consequently, mitigating growing uncertainty during recessions is an important issue. This study uses a regression discontinuity design for a panel of countries to investigate the impact of recession announcements on uncertainty. We demonstrate that recession announcements play a significant role in reducing uncertainty in advanced economies. Given countercyclical uncertainty, recession announcements can help alleviate the volatility of uncertainty over business cycles.

Keywords: Recession announcement; Regression discontinuity design; Uncertainty

JEL classification: C21; D80; E32; E71

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1 Introduction

Over the past few decades, research on uncertainty in macroeconomics has proliferated. Researchers have attempted to measure uncertainty using various approaches (e.g., Leahy and Whited, 1996; Jurado, Ludvigson, and Ng, 2015; Baker, Bloom, and Davis, 2016). Using these uncertainty indexes and theoretical models, other researchers have shown that heightened uncertainty negatively affects key macroeconomic variables, such as production and employment (e.g., Bloom, 2009; Colombo, 2013). Recently, Ahir, Bloom, and Furceri (2022) developed a new uncertainty index that is applicable not only for developed countries but also for developing countries, unlike earlier uncertainty indexes. Using the new uncertainty index, they pointed out that regardless of whether the country is developed or developing, uncertainty is countercyclical; that is, uncertainty increases during recessions.

How do recession announcements impact uncertainty? Although uncertainty is countercyclical in terms of ex post data, the effect of real-time news announcing a recession on uncertainty remains poorly understood. On the face of it, competing hypotheses for this effect exist. The first hypothesis is straightforward. That is, consistent with the observation that uncertainty is countercyclical, recession announcements increase uncertainty. An alternative hypothesis is that recession announcements clarify whether an economy is in recession and thereby decrease uncertainty because uncertainty is considered high when it is unclear whether the economy has entered a recession.

This study tests these competing hypotheses by examining the effects of recession announcements on uncertainty. We address this question by employing the regression discontinuity design (RDD) of Eggers, Ellison, and Lee (2021), who focus on the convention that a recession is covered in the news media when real-time GDP growth turns out

to be negative for two consecutive quarters. In performing the RDD, we use the new uncertainty index of Ahir, Bloom, and Furceri (2022), which covers a larger cross-section of countries for longer time periods than before. This is not only because their index allows us to estimate the treatment effect rigorously but also because it enables us to compare the treatment effect of advanced economies with that of emerging economies. It is necessary to consider the differences between advanced and emerging economies because they have different information transfer capabilities.

We find that recession announcements reduce uncertainty in advanced economies. By contrast, no significant impact of recession announcements on uncertainty was found in emerging economies. Such a marked difference between advanced and emerging economies may not be surprising because the latter lack sufficient information and telecommunication infrastructure. In other words, emerging economies have poor ability to communicate information to the wider public; consequently, real-time announcements do not make practical sense. Thus, our findings indicate that if information and telecommunication infrastructure are constructed, recession announcements are useful in alleviating an increase in uncertainty during recessions.

This study contributes to the literature at the crossroads of two lines of research. The first line is the above-mentioned growing body of literature on uncertainty. We provide evidence that fosters a better understanding of the behavior of uncertainty over business cycles. In the second line of research, we add new results on announcement effects to the literature on the role of media and its effects (e.g., Besley and Burgess, 2002; Morris and Shin, 2002; Blinder and Krueger, 2004; DellaVigna and Kaplan, 2007; Tetlock, 2007; Levy, 2021). Our results shed new light on a positive aspect of recession announcements, whereas Eggers, Ellison, and Lee (2021) show the negative impacts of recession announcements on macroeconomic variables such as consumption and GDP.

The remainder of the paper is organized as follows. In Section 2, we explain our data and empirical method. In Section 3, we present the empirical results. Section 4 concludes the paper.

2 Data and methodology

2.1 Data description

Our data set is a panel of countries with quarterly observations constructed by combining the uncertainty index of Ahir, Bloom, and Furceri (2022) with the GDP announcement data of Eggers, Ellison, and Lee (2021).[1] Table 1 lists the countries in our sample, in which advanced and emerging economies are classified based on the IMF World Economic Outlook (WEO), following Ahir, Bloom, and Furceri (2022).

[Insert Table 1 and Figure 1]

While Ahir, Bloom, and Furceri (2022) show that uncertainty is countercyclical, we now confirm whether a similar result holds in our sample, which is a smaller cross-section of countries than their sample. Figure 1 shows the histogram of uncertainty calculated by income groups (i.e., advanced or emerging economies) and broken down by non-recession/recession status, where a recession means that final GDP growth is negative, as in Ahir, Bloom, and Furceri (2022). It can be seen in Figure 1 that regardless of whether an economy is advanced or emerging, uncertainty tends to be higher in recession than in non-recession periods.

[Insert Table 2]

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[1] As shown in Ahir, Bloom, and Furceri (2022), the uncertainty index is correlated with well-known economic policy uncertainty of Baker, Bloom, and Davis (2016).

To test the visual inspection formally, Table 2 reports the results of the Wilcoxon rank-sum tests as well as summary statistics. Consistent with Ahir, Bloom, and Furceri (2022), the table confirms that uncertainty is higher, on average, during a recession.

2.2 Empirical method

To investigate the causal effects of recession announcements on uncertainty, we rely on the sharp RDD of Eggers, Ellison, and Lee (2021). The sharp RDD is based on the convention that news media covers a recession in period t when real-time GDP growth turns out to be negative for two consecutive quarters (i.e., in periods $t-1$ and $t-2$). To perform the RDD, our sample data are limited to quarters in which GDP growth two quarters ago (Δy_{t-2}) was negative. Given the limited sample, the running variable is the GDP growth one quarter ago (Δy_{t-1}). Thus, the average treatment effect at $\Delta y_{t-1} = 0$ of recession announcements in period t on uncertainty in period t (u_t) is given by

$$\lim_{\Delta y_{t-1} \uparrow 0} \mathbb{E}\left[u_t | \Delta y_{t-1} = 0\right] - \lim_{\Delta y_{t-1} \downarrow 0} \mathbb{E}\left[u_t | \Delta y_{t-1} = 0\right].$$

To ensure that the causal effect is properly estimated by the RDD, the running variable must be random around the threshold. Eggers, Ellison, and Lee (2021) confirm the randomness; consequently, we can apply the RDD to evaluate the effects of a recession announcement on uncertainty.

3 Estimation results

To present the results visually, Figure 2 depicts the relationship between uncertainty and the running variable (GDP growth one quarter ago) on either side of the threshold. In

the figure, the order of the local polynomial is set to one, and a triangular kernel is used. We observe a negative jump moving from non-treated to treated regions in advanced economies and a positive jump in emerging economies.

[Insert Figure 2]

The RDD estimates for the effects of recession announcements on uncertainty are reported in Table 3, where Panels (a) and (b) show the results for advanced and emerging economies, respectively. In advanced economies, regardless of the local polynomial order, types of kernel function, and inclusion of country fixed effects, the results indicate statistically significant and negative estimates. This finding suggests that recession announcements reduce uncertainty in advanced economies. By contrast, although all estimates are positive in emerging economies, most are not statistically significant.[2] One possible source of such a difference between advanced and emerging economies is that emerging economies lack sufficient information technology to communicate announcements to the public.

[Insert Table 3 and Figure 3]

To check whether the effects in advanced economies are substantial, we assess the placebo treatment effects. Figure 3 shows the estimates of the treatment effects with 95% confidence intervals at multiple thresholds, using a triangular kernel. For both local linear and quadratic specifications, statistically significant and negative estimates are found only when the threshold is zero, validating the above result that recession announcements decrease uncertainty.

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[2]This might be attributable to the small sample. We leave this issue for future work because it would require a larger sample of emerging economies, which is now unavailable.

4 Conclusion

This study examines the role of recession announcements in the countercyclical behavior of macroeconomic uncertainty. Utilizing a rigorous RDD with a recently developed uncertainty index, we demonstrate that recession announcements significantly decrease uncertainty. Our results suggest that recession announcements can alleviate increases in uncertainty during recessions, thereby reducing the negative impact of increased uncertainty on macroeconomic variables. This suggestion is novel in that a positive impact of recession announcements is revealed, whereas Eggers, Ellison, and Lee (2021) show the negative impacts of recession announcements.

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Table 1: Country in sample

Advanced economies	Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States
Emerging economies	Brazil, Chile, Hungary, India, Indonesia, Mexico, Poland, Russia, South Africa, Turkey

Notes: The classification of advanced and emerging economies follows Ahir, Bloom, and Furceri (2022) who classify them based on the IMF WEO.

Table 2: Uncertainty in non-recession and recession periods

| | Non-recession | | Recession | | |
	Mean	Median	Mean	Median	p-values
Advanced economies	0.163	0.119	0.184	0.144	0.006***
Emerging economies	0.255	0.191	0.374	0.339	0.000***
All countries	0.182	0.132	0.217	0.176	0.000***

Notes: The right column shows p-values of the Wilcoxon rank-sum test. *** denotes significance at the 1% level.

Table 3: RDD estimates for the effects of recession announcements on uncertainty

(a) Advanced economies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Triangular	−0.127***	−0.128***	−0.198***	−0.150***								
	(0.039)	(0.040)	(0.052)	(0.045)								
Epanechnikov					−0.120***	−0.122***	−0.194***	−0.133***				
					(0.040)	(0.041)	(0.052)	(0.045)				
Uniform									−0.094***	−0.080**	−0.114**	−0.100**
									(0.037)	(0.038)	(0.044)	(0.047)
Bandwidth	0.520	0.470	0.566	0.772	0.490	0.452	0.530	0.790	0.624	0.509	0.855	0.735
Local polynomial order	Linear	Linear	Quadratic	Quadratic	Linear	Linear	Quadratic	Quadratic	Linear	Linear	Quadratic	Quadratic
Country fixed effects	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Number of observations	393	393	393	393	393	393	393	393	393	393	393	393

(b) Emerging economies

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Triangular	0.414	0.446*	0.521	0.536								
	(0.292)	(0.250)	(0.403)	(0.346)								
Epanechnikov					0.421	0.445*	0.498	0.540				
					(0.295)	(0.252)	(0.391)	(0.362)				
Uniform									0.372	0.372	0.450	0.541
									(0.234)	(0.234)	(0.378)	(0.394)
Bandwidth	0.947	1.003	1.461	1.634	0.892	0.922	1.411	1.444	1.032	0.999	1.248	1.184
Local polynomial order	Linear	Linear	Quadratic	Quadratic	Linear	Linear	Quadratic	Quadratic	Linear	Linear	Quadratic	Quadratic
Country fixed effects	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Number of observations	80	80	80	80	80	80	80	80	80	80	80	80

Notes: ***, **, and * denote significance at the 1%, 5%, and 10% levels. Robust standard errors are reported in parentheses. Triangular, Epanechnikov, and Uniform represent the specifications of the kernel function used to calculate the local polynomial estimates.
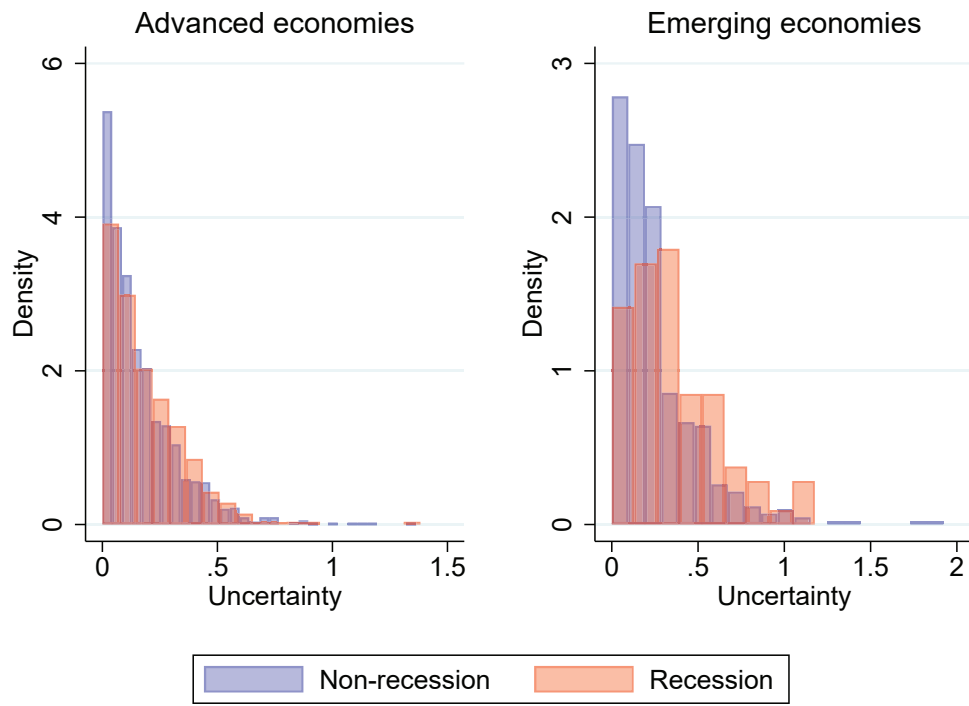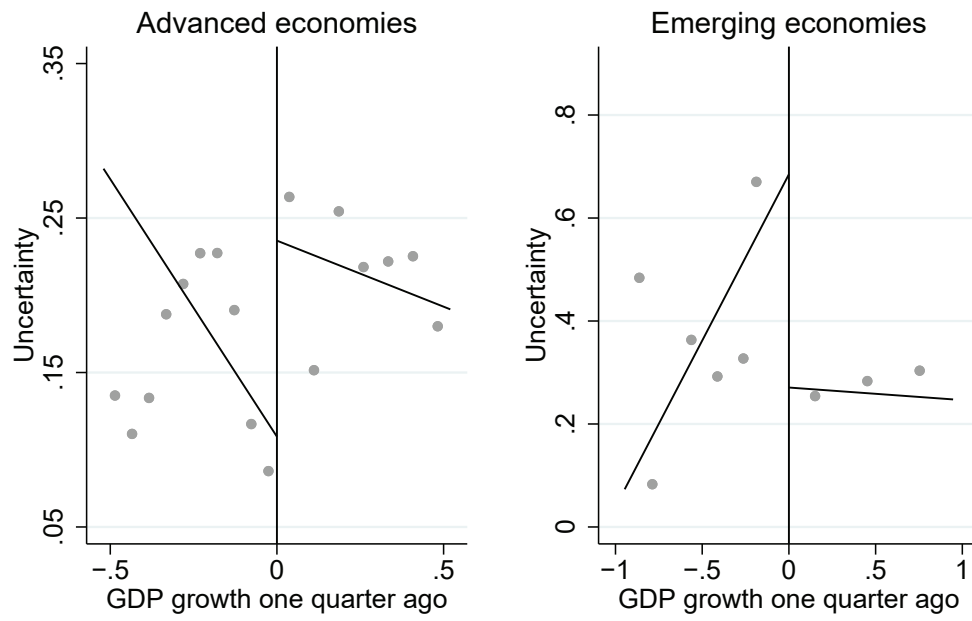
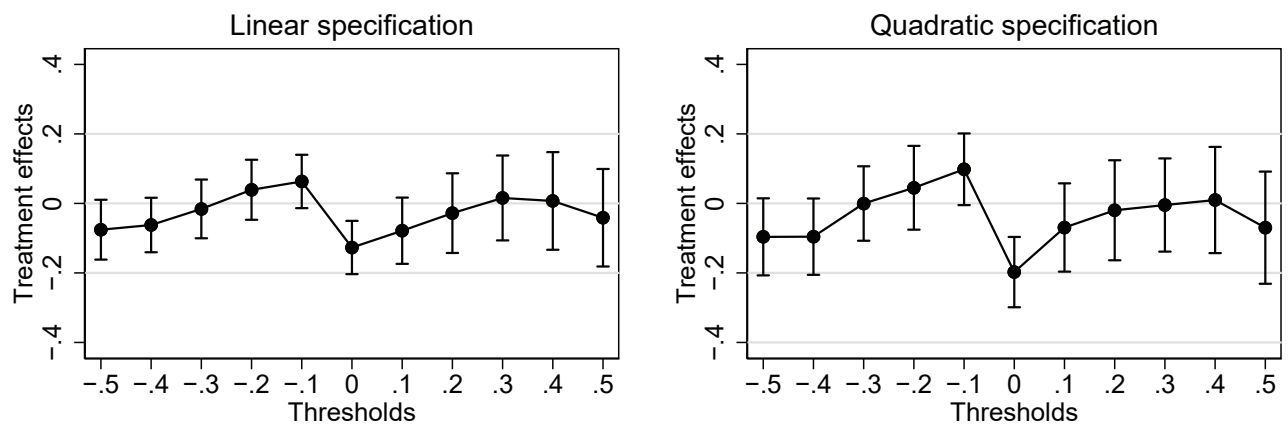Figure 1: Countercyclical uncertainty

Figure 2: Discontinuity effects of recession announcements on uncertainty

Figure 3: Estimates for placebo effects